REMARKS

I. STATUS OF THE CLAIMS

Claims 1 – 4, 6 – 17 and 19 - 30 are pending in the application. Claims 1, 19, 20, 21, 22, and 29 have been amended to clarify the invention.

II. REJECTION BASED ON 35 U.S.C. §103(a)

The Office Action has rejected Claims 1, 19-21, and 29 under 35 USC §112, second paragraph. Applicant has amended said claims to remove the specified term. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection under 35 USC §112, second paragraph.

III. REJECTION BASED ON 35 U.S.C. §103(a)

The Office Action has rejected Claims 1-2, 6-9, 14-16, 20-22, 24-25, and 27-30 under 35 USC §103(a) as being unpatentable over Martin in view of Haddock et al. (U.S. Pat. No. 6,104,700) and further in view of Colley et al. (U.S. Pat. No. 6,650,644 B1).

Applicant respectfully disagrees.

Claim 1 appears as follows:

> 1. A method of selectively establishing a quality of service value for a particular network device in a network that comprises a plurality of other heterogeneous network devices, comprising the steps of:
>
> receiving application information that defines one or more traffic flows associated with one or more message types generated by an

application program, including information identifying one or more points at which an application generates the traffic flows;

receiving device information that defines one of more quality of service treatments that the particular network device may apply to data processed by the particular network device;

based on the device information and the application information, determining one or more processing policies that associate the traffic flows with the quality of service treatments;

creating and storing one or more mappings of the application points to the quality of service treatments that may be used with the processing policies to generate the quality of service value when the application program generates traffic flows of one of the message types;

causing generation of the quality of service value, wherein the generation of the quality of service value is based on said one or more mappings and is performed before transmitting said traffic flows of one of the message types to said network;

enforcing one of the processing policies at the network device in response to receiving traffic from the application program that matches the traffic flow type; and

wherein enforcing one of the processing policies comprises:

requesting, using an application QoS policy element that is coupled to the application program, an operating system function to modify a packet of the traffic flows using a policy element that requests a different operating system function according to the operating system then in use; and

at the network device, in response to receiving traffic from the application program that matches the traffic flow type and in response to the operating system function, modifying a portion of the packet to activate a quality of service treatment of the network device.

In particular, the Office Action states that:

"... Haddock discloses modifying the traffic group (packet) based on the terms of the quality of service policy. Based on the modification, the quality of service policy can be activated (column 5, lines 31-67)."

However, Haddock does not teach what the Office Action states. Haddock's traffic groups are logical associations with the packet types. Traffic groups are provided by the network manager. Any changes in the traffic group changes how a traffic group is logically defined or associated with a QoS queue. Col. 6, lines 1-14 state:

"A number of QoS queues 180 may be provided at each of the ports of a packet forwarding device. In one embodiment, a mapping of traffic groups to QoS queues 180 may be maintained. As traffic groups are provided by the network manager, the UI 145 updates the local mapping of traffic groups to QoS queues 180. This mapping process may be a one-to-one mapping of the traffic groups defined by the network manager to the QoS queues 180 or the mapping process may be more involved. For example, there may be more traffic groups than QoS queues 180, in which case, more than one traffic group will be mapped to a single QoS queue. Some consolidation rules for combining multiple traffic groups into a single QoS queue will be discussed below."

Therefore, Haddock does not modify packets as the Office Action states. Haddock uses information from the physical port, source and destination addresses, and other network layer information to classify a packet into a traffic group in order to direct the packet to a QoS queue. Col. 5, lines 11-49 state:

"The UI 145 receives information indicative of one or more traffic groups. This information may be provided by the network manager. There are several ways to define a traffic group. Table 1 below illustrates a variety of traffic classification schemes that may be supported by the UI 145.

TABLE 1

	Traffic Classification	
Policy Based Upon	Traffic Group Definition	OSI Layer
Applications	TCP Session	Transport Layer
	UDP Session	
	RSVP Flow	
Network Layer	Network Layer Protocol	Network Layer
Topology or Groups of	Subnet or IP Address	
Users	VLAN Identifier	
End-Station Applications	MAC Address	Link Layer
	802.1p or 802.1Q	
Physical Topology	Physical Port	Physical Layer

The information used to identify a traffic group typically depends upon what terms the QoS policy is defined. If the QoS policy is based on applications, traffic groups may be differentiated at the Transport layer by Transmission Control Protocol (TCP) session or User Datagram Protocol (UDP) session. For example, the network manager may provide information indicative of TCP source and

destination ports and IP source and destination addresses to identify traffic groups. However, if the QoS policy is based upon the Network layer topology or groups of users, traffic group definition may be more convenient by supplying information regarding the Network layer protocol, such as Internet Protocol (IP) or Internetwork Packet Exchange (IPX), the subnet or IP addresses, or VLAN identifiers. If the QoS policy is defined by end-station applications, then Media Access Control (MAC) addresses, IEEE 802.1p priority indications, or IEEE 802.1Q frames may be employed to identify traffic groups. Finally, if the QoS policy is physical topology based, physical port identifiers may be used to differentiate traffic groups."

Haddock's comparison engine determines which of the previously defined traffic groups a packet in the data stream is associated with. Col. 6, lines 27-36 state:

"The input data stream is received by the comparison engine 155 from input switch ports (not shown). Under the direction of the packet classification process 150, the comparison engine 155 determines with which of the previously defined traffic groups a packet in the data stream is associated. The packet classification block 150 may employ the traffic group indications provided by the network manager to provide the comparison engine 155 with information regarding locations and fields to be compared or ignored within the header of a received packet, for example."

It is clear from Haddock that Haddock does not modify the packet as the Office Action states and that the modification of a traffic group is a modification of a logical association of packet identification to QoS queues.

Therefore, it would not have been obvious to one of ordinary skill in the art at the time of the invention was made to have incorporated Haddock into Martin as the Office Action states because Haddock does not teach requesting an operating system function to modify a packet.

The Office Action further states:

> "... Colley discloses modifying the data packet by masking the header field of the data packet with a ToS (type of service) mask that coincides with the QoS (quality of service) (Figure 6, column 2, lines 3-11, 47-55)."

However, Colley does not teach what the Office Action states. Colley creates a temporary value used within Colley's system to perform a lookup into a QOS lookup table. Colley clearly states in Fig. 6 that a TOS word is generated to be used to look up a value in a lookup table.

Colley further teaches that a data packet contains an 8-bit QOS field and the information from the field is used by masking bits from the field to look up a 5-bit TOS value in the lookup table. Col. 5, line 57-col. 6, line 51 state:

> "One embodiment of the disclosed technology supports a configurable mapping function which allows users to specify an encoding used in a network which can then be appropriately decoded and translated while the system is in operation. TOS fields are preferably mapped on a per-interface basis. For an example multi-user environment with equipment from multiple vendors, on ingress, a TOS field and a precedence field are mapped from a first vendor encoding to an internal encoding. On egress, the internal encoding is mapped to a second vendor specific encoding for subsequent transmission.

In one embodiment of the disclosed technology, the IP header of a data packet contains a 8-bit QOS field which provides a definition of the quality of service for that data packet. Typically, the 8-bit QOS field may be divided into a 3-bit precedence segment and a 5-bit TOS segment, but it will be recognized by one of ordinary skill in the art that the size, number, and type of divisions of the QOS field may be modified without loss of generality. A 256 entry lookup table is used to translate the 8-bit QOS field into a 3-bit ISC and a 1-bit drop preference (DP) bit. An example partial receive translation table illustrating an 8-bit QOS to 4-bit ISC translation is given below in Table 3.

TABLE 3

Receive translation table.

QOS Byte	Mask	ISC	DP
00000000	--11----	0	0
00010000	--11----	3	0
00100000	--11----	6	1
00110000	--11----	7	1

Once internal processing of the data packet is complete, the 4-bit ISC value contained in the data packet header is translated back to an external QOS value. A 256 entry lookup table is used to translate the 4-bit ISC to an 8-bit QOS value."

Colley does not teach what the Office Action states. It would not have been obvious to one of ordinary skill in the art at the time of the invention was made to have incorporated Colley's modifying a portion of the packet in Martin's system in order to translate a QoS data packet into an incoming type of service data packet, but that a TOS

value is obtained from the data packet's QOS header and is used to look up the TOS value in a lookup table.

Therefore, Martin in view of Haddock et al. and further in view of Colley et al. does not teach or disclose the invention as claimed.

Claim 1 is therefore allowable. Independent Claims 20, 21, 29, and 30 are similarly allowable. Claims 2, 6-9, 14-16, and 28 are dependent upon Claim 1 and are allowable. Claims 22, 24, 25, and 27 are dependent upon Claim 21 and are allowable. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection under 35 USC §103(a).

IV. REJECTION BASED ON 35 U.S.C. §103(a)

The Office Action has rejected Claims 3-4 and 23 under 35 USC §103(a) as being unpatentable over Martin in view of Haddock et al. in further view of Colley et al. and in further view of Chapman et al. (U.S. Pat. No. 6,028,842).

The rejection under 35 USC §103(a) is deemed moot in view of Applicant's comments regarding Claims 1, 20, 21, 29, and 30, above. Claims 3-4, and 23 are dependent upon Independent Claims 1 and 21, respectively. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection under 35 USC §103(a).

VI. REJECTION BASED ON 35 U.S.C. §103(a)

The Office Action has rejected Claim 10-11, 17, 19, and 26 under 35 USC §103(a) as being unpatentable over Martin in view of Haddock et al. and in further view of Chapman in further view of Mohaban et al. (U.S. Pat. No. 6,463,470).

The rejection under 35 USC §103(a) is deemed moot in view of Applicant's comments regarding Claims 1, 20, 21, 29, and 30, above. Independent Claim 19 is similarly allowable. Claims 10-11, 17, and 26 are dependent upon Independent Claims 1 and 21, respectively. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection under 35 USC §103(a).

VII. REJECTION BASED ON 35 U.S.C. §103(a)

The Office Action has rejected Claims 12 and 13 under 35 USC §103(a) as being unpatentable over Martin in view of Haddock et al. and in further view of Schwaller et al. (U.S. Pat. No. 6,061,725).

The rejection under 35 USC §103(a) is deemed moot in view of Applicant's comments regarding Claims 1, 20, 21, 29, and 30, above. Claims 12-13 are dependent upon Independent Claim 1. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection under 35 USC §103(a).

III. MISCELLANEOUS

For the reasons set forth above, Applicant respectfully submits that all pending claims are patentable over the art of record, including the art cited but not applied. Accordingly, allowance of all claims is hereby respectfully solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Respectfully submitted,

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